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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TRAN, PHUC H

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/821,123	<b>Applicant(s)</b> LITTLE ET AL.	
	<b>Examiner</b> PHUC TRAN	<b>Art Unit</b> 2471	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25,28-31 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-14,19-21,25,28-31 and 35 is/are rejected.
- 7) ☒ Claim(s) 4,15-18 and 22-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the two beamformer in claims 22-23 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims are rejected under 35 U.S.C. 102(b) as being anticipated by Ogle et al. (U.S. Patent No. 5817024).

- With respect to claim 1, Ogle teaches a system comprising an application specific integrated circuit (e.g. Fig. 1) comprising a plurality of components for providing a first level of signal channel reduction and a second level signal channel reduction (e.g. Fig. 7 shows the 128 signals from 10 to block 20 and to block 500 with 16/8 channel), wherein said first and second levels of signal channel reduction are achieved by selecting which of said components to enable (see col. 5, lines 10-40).

- With respect to claim 2, Ogle teaches wherein said ASIC (as in Fig. 1) a plurality of multiplexors providing N to M signal multiplexing, wherein in the first level reduction said ASIC is configured to provide N to M signal multiplexing, and wherein in the second level signal channel reduction said ASIC is configured to provide N to M/2 signal multiplexing (as show in Fig. 7).

- With respect to claim 3, Ogle teaches wherein said plurality of multiplexors include N signal inputs, M signal outputs, at least one select signal input, and at least one enable signal input, said enable signal input being utilized in providing said N to M/2 signal multiplexing said second level of signal channel reduction (e.g. Fig. 7 show N inputs and M output signal channel).

- With respect to claims 5 and 28, Ogle discloses wherein at least one of said select signals input and said enable signal input comprise a digital serial control bus (e.g. the Fig. 1 shows the ADC therefore signals are digital).

- With respect to claims 6-7 and 30, Ogle teaches wherein said ASIC comprises: a circuit configurable to provide a cross point switch function the first level of signal channel reduction and to provide a signal summer function in the second level of signal channel reduction (e.g. Fig. 5 show the switching function at block 412 and sum to second level).

- With respect to claim 10 and 12-13, Ogle also teaches a system comprising: an application specific integrated circuit (ASIC) comprising circuitry enabling selection of a first level of signal channel reduction in a first circuit configuration and enabling selection of a second level of signal channel reduction in a second circuit configuration (e.g. Fig. 7 shows the 128 signals from 10 to block 20 and to block 500 with 16/8 channel); wherein the ASIC is included in an application comprising a transducer, a beam former, and a data path, and wherein the data path is in communication with the ASIC, the transducer, and the beam former (see Fig. 1).

- With respect to claim 11, Ogle discloses wherein the application further comprises a signal processing unit external to the data path and in communication with the data path at a number of points thereon and is operable to capture and insert information in the data path at each of those number of points (e.g. show in Fig. 1).

- With respect to claim 14, Ogle further teaches summing data on each of at least two channels by the ASIC (e.g. fig. 5 show sum bus 440).

- With respect to claim 19 and 31, Ogle discloses operating circuitry on the ASIC as a plurality of multiplexors, thereby decreasing the number of channels from a transducer array to a beam former (e.g. Fig. 7 shows the number of channel decrease through the blocks 20).

- With respect to claim 20, Ogle teaches wherein the multiplexors are 2:1 multiplexors, and wherein operating as a plurality of multiplexors comprises selectively enabling one of every two 2:1 multiplexors, thereby providing 4:1 multiplexing functionality (see col. 4, lines 59-67 and col. 5, lines 1-25).

- With respect to claim 21, Ogle also teaches wherein selectively enabling comprises stimulating an enable switch on one of every two 2:1 multiplexors by a control signal from a beam former (see col. 6, lines 1-10).

- With respect to claims 25, 29 and 35, Ogle teaches an apparatus comprising: a sonogram imaging system including: a transducer; a beam former; a data path including a plurality of information channels connecting the transducer to the beam former (see fig. 1); and an ASIC in communication with the data path between the transducer and the beam former, including circuitry operable as a bank of multiplexors to decrease a number of the information channels from the transducer to the beam former (e.g. Fig. 5), wherein the circuitry on the ASIC comprises a plurality of 2:1 multiplexors, wherein each multiplexor includes an enable switch and a select switch, and wherein the beam former controls the enable and select switches on each of the plurality of 2:1 multiplexors to provide a higher-order multiplexing functionality (col. 6, lines 5-10).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogle et al. (U.S. Patent No. 5817024) in view of Henderson et al. (U.S. Patent No. 6695783).

- With respect to claim 8-9, Ogle teaches wherein said ASIC (as in Fig. 1) discloses all the aspect of the claimed invention as set forth above but fails to teach the summer function which Henderson also teaches wherein the signal summer function comprises a symmetric signal summing operation (e.g. block 76, 86, 116, and 126 in Fig. 8); determined to be of similar weight and delay (see col. 3, lines 30-35). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to implement the symmetric signal summing operation into Ogle's invention for sum the signal channel in the device.

#### ***Allowable Subject Matter***

Claims 4, 15-18, and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Amendment***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUC TRAN whose telephone number is (571)272-3172. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHI PHAM can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PHUC H TRAN/  
Primary Examiner, Art Unit 2416